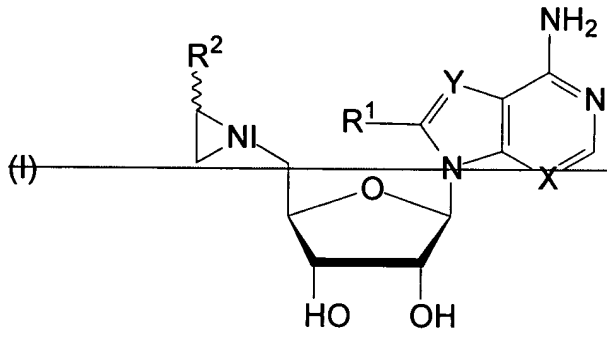
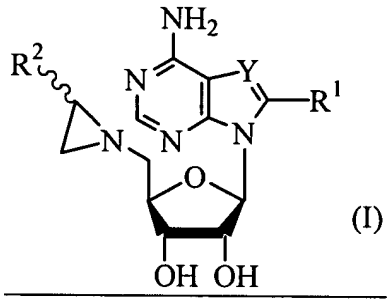
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A compound ~~comprising a structure represented by~~of Formula (I):





(I)

wherein ~~X is N or CH,~~ Y is N or $-CR^3$, R^1 and R^3 independently from each other are H, ^3H, $-NH(CH_2)_nNHR^4$ or $-NH(C_2H_5O)_nC_2H_5NHR^4$, with R^4 selected from the group consisting of fluorophores, affinity tags, crosslinking agents, chromophors, proteins, peptides, amino acids, ~~modified amino acids,~~ nucleotides, nucleosides, nucleic acids, carbohydrates, lipids, PEG, transfection reagents, beads and intercalating agents, and n being an integer from 1 to 250, and R^2 is selected from H, ^3H, and $-CH_2CH(COOH)(NH_2)$, ~~$-N(CH_2)_nNHR^4$, $-NH(C_2H_5O)_nC_2H_5NHR^4$, wherein R^4 and n are as defined above, or R^2 is $-CH^2CH(COOH)(NH_2)$~~ provided, when R^1 is $-NH(CH_2)_nNHR^4$ or $-NH(C_2H_5O)_nC_2H_5NHR^4$, Y is N or CH; and when R^3 is $-NH(CH_2)_nNHR^4$ or $-NH(C_2H_5O)_nC_2H_5NHR^4$, R^1 is H.

2-43. Canceled.

44. (New) The compound of claim 1 where Y is N.

45. (New) The compound of claim 44 where R^1 is $-NH(CH_2)_nNHR^4$ and R^2 is hydrogen.

46. (New) The compound of claim 45 wherein n is 1-20.

47. (New) The compound of claim 46 wherein R^4 is selected from flourophores, affinity tags, crosslinking agents and chromophors.

48. (New) The compound of claim 47 wherein the fluorophore is BODIPY, coumarin, dansyl, florescein, mansyl, pyrene, rhodamines, Texas red, TNS, the cyanine fluorophores Cy2, Cy3, Cy3.5, Cy5, Cy5.5, and Cy7.

49. (New) The compound of claim 48 wherein the fluorophore is dansyl.

50. (New) The compound of claim 49 wherein n is 4.

51. (New) The compound of claim 44 wherein R^1 and R^2 are each hydrogen.

52. (New) The compound of claim 44 wherein R^1 is hydrogen and R^2 is $-CH_2CH(COOH)(NH_2)$.

53. (New) The compound of claim 1 wherein Y is CR^3 and R^1 is hydrogen.

54. (New) The compound of claim 53 where R^3 and R^2 are each hydrogen.

55. (New) The compound of claim 53 wherein R^3 is hydrogen and R^2 is $-CH_2CH(COOH)(NH_2)$.

56. (New) The compound of claim 53 wherein R^3 is $-NH(CH_2)_nNHR^4$ and R^2 is hydrogen.

57. (New) The compound of claim 56 wherein n is 1-20.

58. (New) The compound of claim 57 wherein R^4 is selected from flourophores, affinity tags, crosslinking agents and chromophors.

59. (New) The compound of claim 58 wherein the fluorophore is BODIPY, coumarin, dansyl, florescein, mansyl, pyrene, rhodamines, Texas red, TNS, the cyanine fluorophores Cy2, Cy3, Cy3.5, Cy5, Cy5.5, and Cy7.

60. (New) The compound of claim 59 wherein the fluorophore is dansyl.

61. (New) The compound of claim 60 wherein n is 4.

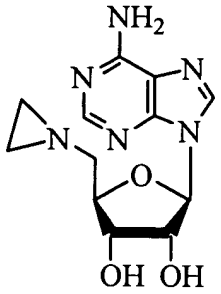
62. (New) The compound of claim 47 or claim 58 wherein the affinity tag is a peptide tag, biotin, digoxigenin or dinitrophenol.

63. (New) The compound of claim 62 wherein the peptide tag is his-tag, or a tag having metal chelating capability that can be used in IMAC, strep-tag, flag-tag, c-myc-tag, epitopes or gultathinone.

64. (New) The compound of claim 47 or claim 58 wherein the crosslinking agent is maleimide, iodoacetamide or a photo crosslinking agent.

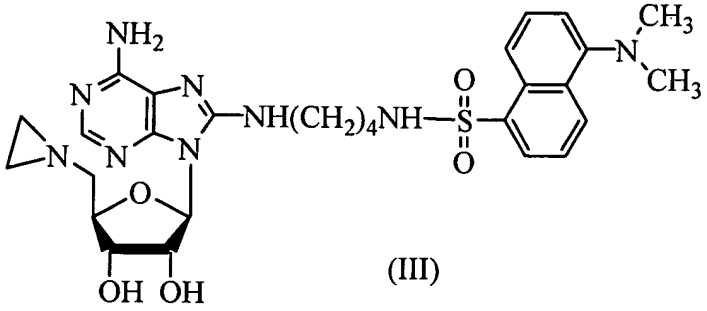
65. (New) The compound of claim 64 wherein the photo crosslinking agent is arylazide, a diazo compound or a benzophenone compound.

66. (New) A compound of Formula (II):



(II)

67. (New) A compound of Formula (III):



(III)

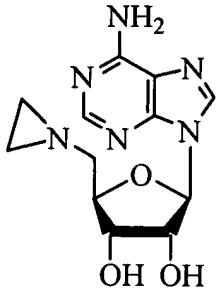
68. (New) A complex comprising a compound of claim 1 and a methyltransferase capable of using S-adenosyl-L-methionine (SAM) as a cofactor.

69. (New) The complex of claim 68 wherein the methyltransferase targets a target molecule selected from the group consisting of a nucleic acid, a polypeptide, a protein, an enzyme and a small molecule.

70. (New) The complex of claim 69 wherein the nucleic acid is a DNA or an RNA.

71. (New) The complex of claim 70 wherein the DNA is M.Taq1 or M. Hha1.

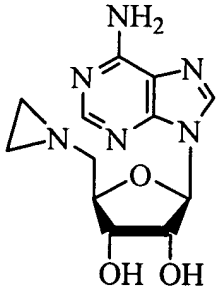
72. (New) The complex of claim 71 comprising a compound of Formula (II):



(II)

and M.Taq1.

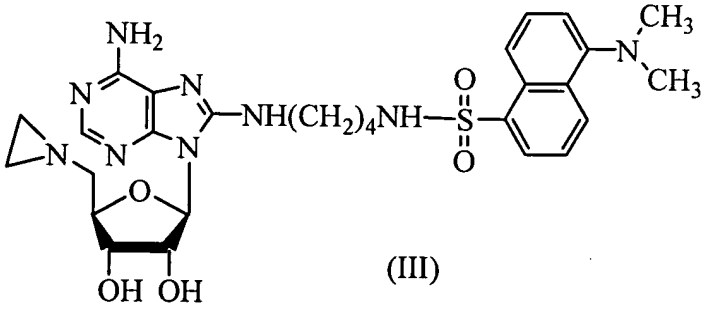
73. (New) The complex of claim 71 comprising a compound of Formula (II):



(II)

and M.Hhal.

74. (New) The complex of claim 71 comprising a compound of Formula (III):



(III)

and M.Taq1.

75. (New) The complex of claim 68 wherein the methyltransferase is part of a restriction modification system of a bacterium.

76. (New) The complex of claim 68, wherein the methyltransferase methylates proteins at distinct amino acids.

77. (New) A kit comprising a compound of claim 1.

78. (New) A kit comprising a complex of claim 68.

79. (New) A pharmaceutical composition comprising a compound of claim 1.

80. (New) A pharmaceutical composition comprising a complex of claim 68.

81. (New) A diagnostic composition comprising a compound of claim 1.

82. (New) A diagnostic composition comprising a complex of claim 68.

83. (New) A method for modifying a target molecule comprising the following steps:

providing a compound of claim 1;

providing a methyltransferase capable of using S-adenosyl-L-methionine (SAM) as a co-factor;

providing a target molecule, the target molecule being a suitable substrate of the methyltransferase; and

contacting the target molecule with the compound in the presence of the methyltransferase such that the target molecule is modified by the compound.

84. (New) The method of claim 83, wherein the modification of the target molecule is achieved by using the compound as a cofactor of the methyltransferase which transfers the compound or part of the compound onto the target molecule.

85. (New) The method of claim 83, wherein the target molecule is a nucleic acid molecule, a polypeptide, a synthetic polymer or a small molecule.

86. (New) The method of claim 85, wherein the nucleic acid molecule is DNA, RNA or a hybrid thereof.

87. (New) The method of claim 85, wherein the small molecule is a lipid.

88. (New) The method of claim 85, wherein the polypeptide is a protein or a fusion protein comprising a methylation site.

89. (New) A method for preparing a modified target molecule comprising the following steps:

providing a compound of claim 1;

providing a methyltransferase capable of using S-adenosyl-L-methionine (SAM) as a co-factor;

providing a target molecule, the target molecule being a suitable substrate of the methyltransferase; and

incubating the target molecule with the compound in the presence of the methyltransferase under conditions which allow the transfer of the compound or part of it onto the target molecule.

90. (New) The method of claim 89, wherein the target molecule comprises a nucleic acid molecule, a DNA, an RNA, an RNA/DNA hybrid, a polypeptide, a fusion protein, a synthetic polymer, a small molecule or a lipid.

91. (New) A compound prepared by the method of claim 89.